UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,618	03/04/2002	Sashikanth Chandrasekaran	50277-1725	8221

29989 7590 07/07/2005

HICKMAN PALERMO TRUONG & BECKER, LLP
2055 GATEWAY PLACE
SUITE 550
SAN JOSE, CA 95110

EXAMINER	
DODDS, HAROLD E	

ART UNIT	PAPER NUMBER
2167	

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/091,618	CHANDRASEKARAN ET AL.	
	Examiner	Art Unit	
	Harold E. Dodds, Jr.	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23 and 49-71* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6-11,13-23,49,54-59 and 61-71* is/are rejected.

7)☒ Claim(s) *2-5,12,50-53 and 60* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/23/04-5/16/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1, 10, 18, 20-23, 49, 58, 66, and 68-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bereznyi et al. (U.S. Patent No. 6,115,715) and Sheard et al. (U.S. Patent No. 6,453,356).

3. Bereznyi renders obvious independent claims 1 and 49 by the following:

"...modifying the data item in a first node of said multiple caches..." at col. 21, lines 22-25, col. 4, lines 55-60, and col. 6, lines 53-55.

"...to create a modified data item..." at col. 5, lines 43-46 and col. 21, lines 2-25.

"...sending the modified data item from said first node to a second node of said multiple

caches..." at col. 23, lines 15-16, col. 21, lines 22-25, col. 4, lines 55-60, and col. 6, lines 53-55.

"...without durably storing the modified data item from said first node..." at col. 1, lines 16-18, col. 21, lines 22-25, and col. 4, lines 55-60.

"...after said modified data item has been sent from said first node to said second node..." at col. 21, lines 22-25, col. 23, lines 15-16, and col. 4, lines 55-60.

"...to a master of said data item..." at col. 8, lines 27-29 and col. 21, lines 22-25.

"...said master coordinating with said multiple caches..." at col. 8, lines 27-29.

Bereznyi does not teach the sending of requests, the responding to requests, and the writing of data to persistent storage.

4. However, Sheard teaches the sending of requests, the responding to requests, the writing of data to persistent storage, and the use of master processes as follows:

"...to persistent storage...," at col. 12, lines 4-7.

"...said first node sending a request..." at col. 13, lines 45-50 and col. 54, lines 54-56.

"...for writing said data item to persistent storage..." at col. 49, lines 32-34 and col. 12, lines 4-7.

"...and in response to said request..." at col. 5, lines 50-52.

"...to cause said data item to be written to persistent storage..." at col. 49, lines 32-34 and col. 12, lines 4-7.

It would have been obvious to one of ordinary skill at the time of the invention to combine Sheard with Bereznyi to send requests and respond to requests in order to

standard processes to communicate between nodes in a computer system and gain acceptance of the system. Likewise, it would have been obvious to one of ordinary skill at the time of the invention to combine Sheard with Bereznyi to write data to persistent storage in order to retain the data when the system is shut down. Bereznyi and Sheard teach related applications. They teach the use of computers, the use of databases, the use of networks, the use of caches, the use of queries, the use of applications, the use of nodes, the use of objects, the use of locks, and the use of messages.

5. As per claims 10 and 58, the "...step of said first node sending a request to a master of said data item...," is taught by Sheard at col. 13, lines 45-50, col. 54, lines 54-56, col. 68, lines 48-52, and col. 49, lines 32-34,
the "...for writing said data item to persistent storage...," is taught by Sheard at col. 49, lines 32-34 and col. 12, lines 4-7,
the "...includes the first node sending to said master a single message...," is taught by Sheard at col. 13, lines 45-50, col. 68, lines 48-52, and col. 37, lines 55-57,
that requests writing a plurality of data items to persistent storage...," is taught by Sheard at col. 54, lines 54-56 and col. 12, lines 4-7,
and the "...wherein said plurality of data items includes said data item...," is taught by Bereznyi at col. 21, lines 22-25.

6. As per claims 18 and 66, the "...determining whether a version of said data item...," is taught by Bereznyi at col. 38, lines 5-8 and col. 21, lines 22-25,
the "...that is at least as recent as said modified version..." is taught by Bereznyi at col. 21, lines 22-25 and col. 38, lines 5-8,

the "...has already been written to persistent storage...," is taught by Sheard at col. 12, lines 4-7,

the "...and if a version of said data item...," is taught by Bereznyi at col. 38, lines 5-8 and col. 21, lines 22-25,

the "...that is at least as recent as said modified version...," is taught by Bereznyi at col. 21, lines 22-25 and col. 38, lines 5-8,

the "...has already been written to persistent storage..." is taught by Sheard at col. 12, lines 4-7,

the "...then sending a write-notification message from said master...," is taught by Sheard at col. 54, lines 54-56, col. 3, lines 55-57, and col. 68, lines 48-52,

the "...to notify said first node...," is taught by Sheard at col. 48, lines 21-25 and col. 13, lines 45-50,

the "...that a version of said data item...," is taught by Bereznyi at col. 38, lines 5-8 and col. 21, lines 22-25,

the "...that is at least as recent as said modified version...," is taught by Bereznyi at col. 21, lines 22-25 and col. 38, lines 5-8,

and the "...has already been written to persistent storage...," is taught by Sheard at col. 12, lines 4-7.

7. As per claims 20 and 68, the "...selecting a particular node of said multiple caches...," is taught by Sheard at col. 8, lines 41-45, col. 13, lines 45-47, and col. 42, lines 13-18,

the "...that has a particular version of said data item...," is taught by Bereznyi at col. 38, lines 5-8 and col. 21, lines 22-25,

the "...wherein said particular version is at least as recent...," is taught by Bereznyi at col. 38, lines 5-8,

the "...as the modified data item in said first node...," is taught by is taught by Bereznyi at col. 21, lines 22-25 and col. 4, lines 55-60.

the "...and causing said particular version of said data item...," is taught by Bereznyi at col. 38, lines 5-8 and col. 21, lines 22-25,

and the "...to be written from said particular node to persistent storage...," is taught by Sheard at col. 12, lines 4-7 and col. 13, lines 45-50.

8. As per claims 21 and 69, the "...selecting the node...," is taught by Sheard at col. 8, lines 741-45 and col. 13, lines 45-47,

the "...of said multiple caches...," is taught by Sheard at col. 42, lines 13-18,

and the "...that has a most recently modified version of said data item...," is taught by Bereznyi at col.38, lines 5-8 and col. 21, lines 22-25.

9. As per claims 22 and 70, the "...step of the master informing the first node...," is taught by Sheard at col. 68, lines 48-52, col. 48, lines 21-25, and col. 13, lines 45-50,

the "...that said data item has been written to persistent storage...," is taught by Sheard at col. 49, lines 32-34 and col. 12, line 4-7,

the "...in response to the master receiving confirmation...," is taught by Sheard at col. 5, lines 50-52, col. 68, lines 48-52, and col. 11, lines 4-7,

and the "...that said particular version of said data item has been written to persistent storage...," is taught by Sheard at col. 4, lines 6-10, col. 49, lines 32-34, and col. 12, line 4-7.

10. As per claims 23 and 71, the "...step of the master informing a set of caches...," is taught by Sheard at col. 68, lines 48-52, col. 48, lines 21-25, col. 62, lines 17-18, and col. 42, lines 13-18,

the "...that said data item has been written to persistent storage...," is taught by Sheard at col. 49, lines 32-34 and col. 12, line 4-7,

the "...in response to the master receiving confirmation...," is taught by Sheard at col. 5, lines 50-52, col. 68, lines 48-52, and col. 11, lines 4-7,

the "...that said particular version of said data item has been written to persistent storage...," is taught by Sheard at col. 4, lines 6-10, col. 49, lines 32-34, and col. 12, line 4-7,

the "...wherein said set of caches includes caches..." is taught by Sheard at col. 62, lines 17-18 and col. 42, lines 13-18,

the "...other than said particular node...," is taught by Bereznyi at col. 4, lines 55-60,

the "...that contain modified versions of said data item...," is taught by Bereznyi at col. 38, lines 5-8 and col. 22, lines 22-25,

and the "...that are not more recent than said particular version...," is taught by Sheard at col. 40, lines 64-66 and col. 4, lines 6-10.

11. Claims 6-9 and 54-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bereznyi and Sheard as applied to the claims above, and further in view of Devarakonda et al. (U.S. Patent No. 5,659,682).

As per claims 6 and 54, the "...step of sending a request to a master is performed by sending the request...," is taught by Sheard at col. 54, lines 54-56 and col. 68, lines 48-52,

but the "...to a global lock manager...," is not taught by either Bereznyi or Sheard.

However, Devarakonda teaches the use of global lock managers as follows:

"...Commonly, a global lock manager is provided to resolve lock requests among tasks running on different processors and to maintain queues of tasks awaiting access to particular lock entities..."

It would have been obvious to one of ordinary skill at the time of the invention to combine Devarakonda with Bereznyi and Sheard to provide global lock managers in order to resolve lock requests among tasks running on different processors and to maintain queues of tasks awaiting access to particular lock entities. Bereznyi, Sheard, and Devarakonda teach related applications. They teach the use of computers, the use of databases, the use of networks, the use of caches, the use of applications, the use of nodes, the use of objects, the use of locks, and the use of messages and Sheard and Devarakonda teach the modification of data.

12. As per claims 7 and 55, the "...step of sending a request to a master is performed by sending the request...," is taught by Sheard at col. 54, lines 54-56 and col. 68, lines 48-52,

the "...to a lock manager that is one of a plurality of lock managers...," is taught by Devarakonda at col. 3, lines 24-28,

and the "...within a distributed lock management system...," is taught by Devarakonda at col. 3, lines 20-23.

13. As per claims 8 and 56, the "...step of sending from the master...," is taught by Sheard at col. 54, lines 54-56 and col. 68, lines 48-52,

the "...to interested nodes...," is taught by Sheard at col. 2, lines 45-49 and col. 13, lines 45-50,

the "...write-notification messages indicating that said data item has been written to persistent storage...," is taught by Sheard at col. 37, lines 55-57, col. 49, lines 32-34, and col. 12, lines 4-7,

and the "...in response to said data item being written to persistent storage...," is taught by Sheard at col. 5, lines 50-52, col. 49, lines 32-34, and col. 12, lines 4-7.

14. As per claims 9 and 57, the "...step of sending write-notification messages...," is taught by Sheard at col. 54, lines 54-56, col. 12, lines 4-7, and col. 37, lines 55-57,

the "...includes the master sending to at least one interested node a single message...," is taught by Sheard at col. 68, lines 48-52, col. 54, lines 54-56, col. 2, lines 45-49, col. 13, lines 45-50, and col. 37, lines 55-57,

the "...that notifies said at least one interested node...," is taught by Sheard at col. 48, lines 21-25, col. 2, lines 45-49, and col. 13, lines 45-50,

and the "...that a plurality of data items have been written to persistent storage...," is taught by Sheard at col. 49, lines 32-34 and col. 12, lines 4-7.

15. Claims 13 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bereznyi, Sheard, and Devarakonda as applied to claims 8, and 56 above respectively, and further in view of Maris et al. (U.S. Patent No. 6,032,188) and Matena (U.S. Patent No. 6,243,814).

As per claims 13 and 61, the "...immediately sending write-notification messages...," is taught by Sheard at col. 54, lines 54-56 and col. 37, lines 55-57,

the "...to a first set of interested nodes...," is taught by Sheard at col. 2, lines 45-49 and col. 13, lines 45-50,

the "...where said first set of interested nodes includes the interested nodes...," is taught by Sheard at col. 2, lines 45-49 and col. 13, lines 45-50,

the "...that have requested said data item to be written to persistent storage...," is taught by Sheard at col. 54, lines 54-56, col. 49, lines 32-34, and col. 12, lines 4-7,

the "...to a second set of nodes...," is taught by Bereznyi at col. 5, lines 43-46 and col. 4, lines 55-60,

the "...where said second set of nodes...," is taught by Bereznyi at col. 5, lines 43-46 and col. 4, lines 55-60,

the "...includes interested nodes...," is taught by Sheard at 2, lines 45-49 and col. 13, lines 45-50,

but the "...and delaying the sending of write-notification messages..."

and the "...that do not belong to said first set of interested nodes...," are not taught by either Bereznyi, Sheard, or Devarakonda.

However, Mairs teaches the delaying of messages as follows:

"...This delay time period is the minimum time between transmitting data notification messages..." at col. 12, lines 25-26.

It would have been obvious to one of ordinary skill at the time of the invention to combine Mairs with Bereznyi, Sheard, and Devarakonda to delay messages in order allow other data processing to occur and inform the user only after the processing of current data has taken place. Bereznyi, Sheard, Devarakonda, and Mairs teach related applications. They teach the use of computers, the use of networks, the use of applications, the use of nodes, and the use of messages and Sheard, Devarakonda, and Mairs teach the modification of data.

Mairs does not teach the exclusion of nodes from node sets.

However, Matena teaches the exclusion of nodes from node sets as follows:

"...FIG. 4 shows the general situation, taking into account the possibility that any of the nodes may have a different CK number than the rest, if that node has failed and been excluded from the membership set..." at col. 5, lines 37-41.

It would have been obvious to one of ordinary skill at the time of the invention to combine Matena with Bereznyi, Sheard, Devarakonda, and Mairs to exclude nodes from node sets in order to only allow nodes in the set, which have the proper identification numbers. Bereznyi, Sheard, Devarakonda, Mairs, and Matena teach related applications. They teach the use of computers, the use of networks, the use of

applications, the use of nodes, and the use of messages and Bereznyi, Sheard, Devarakonda, and Matena teach the use of databases.

16. Claims 14, 16, 62, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bereznyi, Sheard, and Devarakonda as applied to the claims above, and further in view of Maris et al. (U.S. Patent No. 6,032,188).

As per claims 14 and 62, the "...to at least one interested node...," is taught by Sheard at col. 2, lines 45-49 and col. 13, lines 45-50,

but the "...delaying the sending of write-notification messages...," is not taught by either Bereznyi, Sheard, or Devarakonda.

However, Mairs teaches the delaying of messages as follows:

"...This delay time period is the minimum time between transmitting data notification messages..." at col. 12, lines 25-26.

It would have been obvious to one of ordinary skill at the time of the invention to combine Mairs with Bereznyi, Sheard, and Devarakonda to delay messages in order allow other data processing to occur and inform the user only after the processing of current data has taken place. Bereznyi, Sheard, Devarakonda, and Mairs teach related applications. They teach the use of computers, the use of networks, the use of applications, the use of nodes, and the use of messages and Sheard, Devarakonda, and Mairs teach the modification of data.

17. As per claims 16 and 64, the "...write-notification message is sent to the at least one interested node...,"is taught by Sheard at col. 37, lines 55-57, col. 54, lines 54-56, col. 2, lines 45-49, and col. 13, lines 45-50,

the "...in response to the at least one interested node...," is taught by Sheard at col. 5, lines 50-52, col. 2, lines 45-49, and col. 13, lines 45-50,

and the "...requesting that said data item be written to persistent storage...," is taught by Sheard at col. 54, lines 54-56, col. 49, lines 32-34, and col. 12, line 4-7.

18. Claims 15 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bereznyi, Sheard, Devarakonda, and Maris as applied to claims 14 and 62 above respectively, and further in view of Yohe et al. (U.S. Patent No. 6,012,085).

As per claims 15 and 63, the "...write-notification message is sent...," is taught by Sheard at col. 37, lines 55-57, col. 54, lines 54-56,

the "...to the at least one interested node...," is taught by Sheard at col. 2, lines 45-49 and col. 13, lines 45-50,

the "...made by said at least one interested node...," is taught by Sheard at col. 2, lines 45-49 and col. 13, lines 45-50,

but the "...in response to a lock request...," is not taught by either Bereznyi, Sheard, Devarakonda, or Maris.

However, Yohe teaches responding to lock requests as follows:

"...The cache verifying computer includes means for recognizing a LOCK request from the remote client computer and for obtaining a lock on the data from the file server computer in response to the LOCK request..." at col. 3, lines 37-41.

It would have been obvious to one of ordinary skill at the time of the invention to combine Yohe with Bereznyi, Sheard, Devarakonda, and Mairs to respond to lock requests in order provide for the control of access to parts of database by applications

running of remote terminals and thus provide for wider access to the database. Bereznyi, Sheard, Devarakonda, Mairs, and Yohe teach related applications. They teach the use of computers, the use of networks, the use of applications, the use of nodes, and the use of messages, Bereznyi, Sheard, Devarakonda, and Yohe teach the use of caches, the use of objects, and the use of locks, and Sheard, Devarakonda, Mairs, and Yohe teach the modification of data.

19. Claims 17 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bereznyi, Sheard, Devarakonda, and Maris as applied to claims 14 and 62 above respectively, and further in view of Srbljic et al. (U.S. Patent No. 5,933,849).

As per claims 17 and 65, the "...write-notification message is sent...," is taught by Sheard at col. 37, lines 55-57, col. 54, lines 54-56,

the "...to the at least one interested node...," is taught by Sheard at col. 2, lines 45-49 and col. 13, lines 45-50,

the "...that the master sends to the at least one interested node...," is taught by Sheard at col. 68, lines 48-52, col. 54, lines 54-56, col. 2, lines 45-59, and col. 13, lines 45-50,

the "...for the at least one interested node...," is taught by Sheard at col. 2, lines 45-59 and col. 13, lines 45-50,

the "...to transfer another data item to another node...," is taught by Sheard at col. 6, lines 22-26 and col. 13, lines 45-50,

but the "...within a ping request...," is not taught by either Bereznyi, Sheard, Devarakonda, or Maris.

However, Srbljic teaches the use of ping requests as follows:

"...On the other hand, if cache E fails to respond to a request for the object from cache A, then the cache E or the connection to cache E may be inoperative, and another cache on the directory list must be selected and sent a UDP ping request..." at col.

It would have been obvious to one of ordinary skill at the time of the invention to combine Srbljic with Bereznyi, Sheard, Devarakonda, and Mairs to respond to lock requests in order provide for the control of access to parts of database by applications running of remote terminals and thus provide for wider access to the database. Bereznyi, Sheard, Devarakonda, Mairs, and Srbljic teach related applications. They teach the use of computers, the use of networks, the use of nodes, and the use of messages and Bereznyi, Sheard, Devarakonda, and Srbljic teach the use of caches, the use of objects, and the use of locks.

20. Claims 11 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bereznyi and Sheard as applied to claims 10 and 48 above respectively, and further in view of Ranger (U.S. Patent No. 5,999,940).

As per claims 11 and 59, the "...step of sending a single message includes sending a message...," is taught by Sheard at vol. 54, lines 54-56 and col. 37, lines 55-57,

the "...to request that all data items...," is taught by Sheard at col. 54, lines 54-56 and col. 49, lines 32-34,

the "...be written to persistent storage...," is taught by Sheard at col. 12, lines 4-7,

but the "...that identifies a bin..."

and the "...that belong to the bin...," are not taught by either Bereznyi or Sheard.

However, Ranger teaches the use of bins as follows:

"...If the first `M` items are not all members of the same class, even if members of the same superclass, (step 706), then the classification criterion becomes "By Class" (step 726). In this case, class names of the different classes of the first `M` items are used as bin categories. If there are other, different classes among the items beyond the first `M` items, or if the number of classes exceed `R` (step 728), the system provides an "other" bin for these classes (step 730)..." at col. At col. 20, lines 30-37.

It would have been obvious to one of ordinary skill at the time of the invention to combine Ranger with Bereznyi and Sheard to provide bins in order to provide containers for different classes of objects. Bereznyi, Sheard, and Ranger teach related applications. They teach the use of computers, the use of databases, the use of networks, the use of caches, the use of queries, the use of applications, the use of objects, and the use of messages and Sheard and Ranger teach the modification of data.

21. Claims 19 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bereznyi and Sheard as applied to claims 18 and 66 above respectively, and further in view of Frank et al. (U.S. Patent No. 6,832,120).

As per claims 19 and 67, the "...if a version of said data item...," is taught by Bereznyi at col. 38, lines 5-8 and col. 21, lines 22-25,

the "...that is at least as recent as said modified version...," is taught by Bereznyi at col. 38, lines 5-8,

the "...has not already been written to persistent storage...," is taught by Sheard at col. 62, lines 62-64 and col. 12, lines 4-7,

the "...then sending a write-perform message from said master...," is taught by Sheard at col. 54, lines 54-56, col. 3, lines 55-57, and col. 68, lines 48-52,

the "...for said modified version...," is taught by Bereznyi at col. 38, lines 5-8,

the "...to be written to persistent storage...," is taught by Sheard at col. 12, lines 4-7,

but the "...to grant permission...," is not taught by either Traversat or Sheard.

However Frank teaches the granting of permission as follows:

"...Each of these user objects can be granted or denied permissions to any of the Security Permissions in each of the 8 Security Groups..." at col. 7, lines 15-17.

It would have been obvious to one of ordinary skill at the time of the invention to combine Frank with Bereznyi and Sheard to grant permissions in order to allow different users or processes to either access to or modify parts of databases. Bereznyi, Sheard, and Frank teach related applications. They teach the use of computers, the use of databases, the use of networks, the use of caches, the use of queries, the use of applications, the use of nodes, the use of objects, and the use of messages and Sheard and Frank teach the modification of data.

Allowable Subject Matter

22. Claims 2-5, 12, 50-53, and 60 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner has not

been able to identify any prior art that teaches the use of an ordered series of bins where the ordered series corresponds to time ranges.

Response to Arguments

23. Applicants' arguments filed 21 April 2005 have been fully considered but they are not persuasive. In the first argument for independent claim 1 on page 17, paragraph 3, the Applicants state:

"While the approach of the pending claims is directed towards transferring dirty data items between caches without first writing the dirty data items to persistent storage, the approaches of the cited art references are directed towards sharply different subject matter. As a result, fundamental differences exist between the subject matter of the cited art references and the approach of the pending claims."

The Examiner disagrees. There is no reference to "transferring dirty data items between caches without first writing the dirty data items to persistent storage" in either the preamble or limitations of independent claim 1. The limitations of "caches" and "persistent storage" are present in independent claim 1, but there is no mention of "dirty data items". As such, the Examiner finds that independent claim 1 is very broad and the teachings of Traversat and Sheard adequately represent the limitations of independent claim 1.

24. In the second argument for independent claim 1 on page 18, paragraphs 2 and 3, the Applicants state:

"Importantly, there are numerous fundamental differences between the approach of Traversal and that of Claim 1. Traversal does not contain any suggestion of transferring dirty data items from one cache to another. Significantly, the approach of Traversal does not even contain a hint or suggestion of a system of multiple caches. Instead, Traversal teaches away from a system in which data is stored in more than one location by describing an approach for storing data in a central location in a tree of nodes at a server.

In fact, the Traversat reference contains only one recitation of the word "cache" (at Col. 12, line 12). However, this portion of Traversat merely states that the general purpose computer of FIG. 9 "can also very rapidly retrieve and store frequently needed data in a cache memory 910." The Applicants concede that some general-purpose computers contained caches prior to the invention of the Applicants' invention. However, while caches were known to those in the art, the use of caches presented certain problems. Claim 1 solves those problems by defining a technique that, *inter alia*, allows dirty data items to be transferred to one cache to another without first persistently storing the dirty data items.

The Examiner disagrees. There is no reference to "transferring dirty data items from one cache to another" in either the preamble or limitations of independent claim 1.

Applicants' arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. The Traversat reference has been replaced by the Bereznyi reference, which makes multiple references to "caches" and even refers to "multiple caches".

25. In the third argument for independent claim 1 on page 19, paragraph 1, the Applicants state:

"Sheard is relied upon by the Office Action to show a master of a data item stored in a cache, where the master receives a request from a first cache to write the data item to persistent storage, and the master coordinates with multiple caches to cause the data item to be written to persistent storage. Such a master is not disclosed, taught, or suggested by Sheard, as explained below."

The Examiner disagrees. Applicants' arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. The Traversat reference has been replaced by the Bereznyi reference. These limitations are taught by a combination of teachings of the Bereznyi and Shread references. Shread teaches "said first node sending a request" at col. 13, lines 45-50 and col. 54, lines 54-56, "for writing said data item to persistent storage" at col. 49, lines 32-34 and col. 12, lines 4-7,

and "and in response to said request" at col. 5, lines 50-52 and Bereznyi teaches "to a master of said data item" at col. 8, lines 27-29 and col. 21, lines 22-25 and "said master coordinating with said multiple caches" at col. 8, lines 27-29. In particular, Bereznyi teaches "said master coordinating with said multiple caches" as follows:

"...The main cache class is CCache, which is responsible for managing the local cache, one or more remote cache servers, and all data that flows between them." At col. 8, lines 27-28.

In this teaching, the main cache class is the "master" and it is responsible for managing or "coordinating" data flow to the multiple caches.

26. In the fourth argument for independent claim 1 on page 19, paragraph 4 and page 20, paragraph 1, the Applicants state:

"However, the Office Action does not support the obviousness rejections in that manner. Rather, to support the obviousness rejections, not only has each claim been divided into its constituent elements, but also each constituent element of the claim has been finely dissected into a set of short phrases and sentence fragments. The Office Action then points out how each individual fragment corresponds to a similar fragment in any one of a handful of references. The fragment-to-prior-art correlation appears to have been made without any consideration as to the relationship between the fragments, the meaning of the elements as a whole, and the meaning of the claim as a whole."

The Examiner disagrees. There is no reference to "transferring dirty data items between caches without first writing the dirty data items to persistent storage" in either the preamble or limitations of independent claim 1. The Applicants have provided a very general independent claim that addresses the use of caches and the writing to persistent storage. All of the elements in this claim are found in one or both of the Bereznyi and Shread references and the justification used for combining these references is valid.

27. In the fifth argument for independent claim 1 on page 20, paragraph 4 and page 21, paragraphs 1 and 2, the Applicants state:

"The Office Action acknowledges that Traversat "does not teach the sending of requests, the responding to requests, the writing of data to persistent storage, and the use of master processes." However, despite this acknowledgement, and the fact that the approach of Traversat has nothing to do with transferring data from one cache to another cache, the Office Action relies upon various portions of Traversat to show fragments of various elements of Claim 1. For example, Traversat is cited to show the fragments of (1) "...modifying the data item in a first node of said multiple caches..." at Col. 3, lines 49-51; Col. 6, lines 24-25; and Col. 10, lines 10-12, (2) "...to create a modified data item..." at Col. 10, lines 8-9 and Col. 3, lines 49-51, (3) "...sending the modified data item from said first node to a second node of said multiple caches..." at Col. 7, lines 61-63; Col. 3, lines 49-51; Col. 6, lines 24-25; and Col. 5, lines 17-19, (4) "...without durably storing the modified data item from said first node to persistent storage..." at Col. 9, lines 46-47; Col. 3, lines 49-51; Col. 6, lines 24-25; and Col. 5, lines 17-19, and "...after said modified data item has been sent from said first node to said second node..." at Col. 3, lines 49-51; Col. 7, lines 61-63; and Col. 6, lines 24-25. However, no portion of Traversat shows, or is cited to show, the elements in Claim 1..."

The Examiner disagrees. Applicants' arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. The Traversat reference has been replaced by the Bereznyi reference. All of the elements of the limitations taught by Bereznyi are actually taught by Bereznyi.

28. In the sixth argument for independent claim 1 on page 21, paragraph 4 and page 22, paragraph 1, the Applicants state:

"As explained above, there are fundamental differences between the approach of Claim 1 and the approach of Traversat. For example, Traversat does not contain a suggestion of transferring data items from one cache to another cache. For example, the portion of Traversat relied upon by the Office Action to show the claim fragment of "...modifying data items in a first node of a cache..." states, *in toto*..."

The Examiner disagrees. Applicants' arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. The Traversat reference has been replaced by the Bereznyi reference. Bereznyi teaches "modifying

the data item in a first node of said multiple caches" at col. 21, lines 22-25, col. 4, lines 55-60, and col. 6, lines 53-55.

29. In the seventh argument for independent claim 1 on page 22, paragraph 2 and page 23, paragraphs 1 and 2, the Applicants state:

"Similarly, Sheard is cited to show numerous other claim fragments of Claim 1, including the claim fragment of "...said master coordinating with said multiple caches..." Importantly, Sheard is not cited to show, nor does Sheard show, the claim elements of:

"after said modified data item has been sent from said first node to said second node, said first node sending a request to a master of said data item for writing said data item to persistent storage;" or

"in response to said request, said master coordinating with said multiple caches to cause said data item to be written to persistent storage"

Significantly, Claim 1 requires that after a modified data item has been sent from the first node to the second node, the first node sends a request to a master of the data item for writing the data item to persistent storage. Claim 1 also requires that in response to the first node sending a request to the master, the master coordinates with multiple caches to cache the data item to be written to persistent storage. Sheard do not teach these steps, nor is Sheard relied upon to teach these steps.
Instead, Sheard is alleged to teach the use of a master as featured in Claim 1 by the teaching of an owner process, e.g., in Col. 68, lines, lines 48-52. Instead of teaching the above features of Claim 1, the cited portion of Sheard merely discusses the structure of a queue record, which Sheard describes may be used to store data in a queue. Such a structure is in no way analogous to the above-quoted elements of Claim 1.

The Examiner disagrees. Applicants' arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. The Traversat reference has been replaced by the Bereznyi reference. These limitations are taught by a combination of teachings of the Bereznyi and Shread references. Shread teaches "said first node sending a request" at col. 13, lines 45-50 and col. 54, lines 54-56, "for writing said data item to persistent storage" at col. 49, lines 32-34 and col. 12, lines 4-7, and "and in response to said request" at col. 5, lines 50-52 and Bereznyi teaches "after

said modified data item has been sent from said first node to said second node" at col. 21, lines 22-25, col. 23, lines 15-16, and col. 4, lines 55-60, "to a master of said data item" at col. 8, lines 27-29 and col. 21, lines 22-25, and "said master coordinating with said multiple caches" at col. 8, lines 27-29. A more detailed response to the seventh argument is provided in the response to the third argument.

30. In the eighth argument for independent claim 1 on page 25, paragraph 1, the Applicants state:

"Neither Traversat or Sheard show any suggestion, teaching, or motivation to combine their teachings, nor does the Office Action provide a "clear and particular" showing of the suggestion, teaching, or motivation to combine their teachings. The only motivation provided in the Office Action is the hindsight observation that by combining features of those references, one may achieve the benefits achieved from the invention as described and claimed in the application."

The Examiner disagrees. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The reasons to combine are not drawn from the proposed invention, but are drawn from the knowledge of generally used technology. Bereznyi teaches the use of "temporary storage" at col. 1, lines 16-18. This suggests the use of "persistent storage", which is an alternative to "temporary storage". Likewise, Bereznyi teaches the

responding to commands at col. 25, lines 44-48. This suggests the sending of requests and the responding to requests that are taught by Sheard.

31. In the ninth argument for independent claim 1 on page 25, paragraph 2, the Applicants state:

"Further, notwithstanding the fact that it is difficult to see how the approach of either Traversat or Sheard could augment the utility of the other, it is entirely unclear how the approaches may, in fact, be combined in the first place. For example, Traversat is directed towards a locking mechanism for a server maintaining a tree of nodes, while Sheard is directed towards an approach for exchanging data between two or more applications involving transforming a technology-dependent format of a data stream into a technology-independent format. Both of these approaches appear to be orthogonal concepts, and despite the Office Action's unsupported assertions that the references may be combined, there is no explanation in any reference, including Traversat and Sheard, of how such a combination may be performed or what the resulting combination could possibly look like."

The Examiner disagrees. Applicants' arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. The Traversat reference has been replaced by the Bereznyi reference. This office action states "Bereznyi and Sheard teach related applications. They teach the use of computers, the use of databases, the use of networks, the use of caches, the use of queries, the use of applications, the use of nodes, the use of objects, the use of locks, and the use of messages." It is clear that these inventions could easily be combined since they use many of the same technologies in the same manner. It is likewise quite clear that these technologies could be used for the broad invention claimed in independent claim 1.

32. In the tenth argument for independent claim 1 on page 25, paragraphs 3 and 4, the Applicants state:

"It is respectfully submitted that such a hindsight observation is not consistent with the Federal Circuit's requirement for "particular factual findings."

Consequently, for at least the above reasons, it is respectfully submitted that the rejection of Claim 1 under the improperly combined combination of Traversat and Sheard under 35 U.S.C. § 103(a) may not be maintained."

The Examiner disagrees. This is essentially a restatement of the eighth argument. As such, the response to the eighth argument is also valid for the tenth argument.

33. In the eleventh argument for independent claim 49 on page 26, paragraph 1, the Applicants state:

"Independent Claim 49 recites features similar to that of Claim 1, except that Claim 49 is recited in computer-readable medium format. Consequently, it is respectfully submitted that, for at least the reasons given above with respect to Claim 1, Claim 49 is patentable over the cited art and is in condition for allowance."

The Examiner disagrees. Since the responses to the first ten arguments have shown that the limitations of independent claim 1 are rendered obvious and independent claim 49 has the same limitations as independent claim 1 then these responses also render obvious independent claim 49.

34. In the twelfth argument for claims 2-23 and 50-71 on page 26, paragraph 2, the Applicants state:

"Claims 2-23 and 50-71 are dependent claims, each of which depends (directly or indirectly) on one of the claims discussed above. Each of Claims 2-23 and 50-71 are therefore allowable for the reasons given above for the claim on which it depends. In addition, each of Claims 2-23 and 50-71 introduces one or more additional limitations that independently render it patentable. However, due to the fundamental differences already identified, to expedite the positive resolution of this case a separate discussion of those limitations is not included at this time, although the Applicants reserve the right to further point out the differences between the cited art and the novel features recited in the dependent claims."

The Examiner disagrees. Claims 2-5, 12, 50-53, and 60 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening

claims. Since the responses to the first eleven arguments have shown the independent claims 1 and 49 are rendered obvious, claims 6-11 and 13-23 are dependent on independent claim 1, claims 54-59 and 61-71 are dependent on independent claim 49, and no additional arguments have been provided for any of these claims then claims 6-11, 13-23, 54-59, and 61-71 are still rendered obvious.

Conclusion

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harold E. Dodds, Jr. whose telephone number is (571)-272-4110. The examiner can normally be reached on Monday - Friday 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on (571)-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harold E. Dodds, Jr.
Patent Examiner
July 6, 2005

GRETA ROBINSON
PRIMARY EXAMINER